Healthcare Quarterly

Technical Supplement

Emergency department, ambulance, admitted patients, seclusion and restraint, and elective surgery

July to September 2020

Contents

Introduction

This technical supplement describes the data, methods and technical terms used to calculate descriptive statistics and performance measures reported in the Bureau of Health Information's (BHI) *Healthcare Quarterly* report.

The supplement is technical in nature and intended for audiences interested in the creation and analysis of health system performance information.

A chronological account of additions and enhancements to the data and methods is available from the *Healthcare Quarterly* section of the BHI website at **bhi.nsw.gov.au**

Emergency department

This section contains information about the data and methods used for calculating measures of emergency department (ED) activity and performance reported in *Healthcare Quarterly*.

Data sources

Emergency Department Data Collection

ED information in *Healthcare Quarterly* is based on analyses of attendance data in the Emergency Department Data Collection (EDDC) extracted from the centralised data warehouse, the Health Information Exchange (HIE), administered by the NSW Ministry of Health. BHI also received a data file for Northern Beaches Hospital from the NSW Ministry of Health.

EDs are reported individually for hospitals in principal referral, major or district peer groups (A1, A2, A3, B, C1 and C2).

Facilities are included in *Healthcare Quarterly* following assessment of data completeness and accuracy, and in ways that support fair and meaningful comparison.

EDs in NSW have progressively replaced historic information systems with more contemporary electronic record systems. Changeover to a new electronic system may impact the completeness and reliability of input data or extraction from local systems to the HIE for periods longer than one quarter.

Quarters affected by significant changes, for example in policies or systems, are highlighted on time-trend graphs to make readers aware when such changes have contributed to shifts in trend between quarters.

In Healthcare Observer, detailed information is provided for the number of hospitals contributing to each quarter's results. This facilitates the interpretation of trends by showing the reader at what point in time new hospitals were introduced to quarterly reporting.

Transfer of Care Reporting System

Data for calculating the number of ambulance arrivals and transfer of care time are downloaded from the Transfer of Care Reporting System (TCRS) portal. The TCRS incorporates data drawn from the NSW Ambulance information system and from the EDDC. Transfer of care is reported for hospitals where the ambulance incident number and the date can be identified in both the NSW Ambulance data and the EDDC.

Summary of changes

Change of hospital cohort

The number of EDs reported in *Healthcare Quarterly* has increased over time as more EDs are included in the EDDC.

In the January to March 2014 quarter, the activity and performance measures reported in *Healthcare Quarterly* were based on 131 EDs. Between the January to March 2014 and October to December 2016 quarters, there were small changes in the number of EDs reported in *Healthcare Quarterly* from quarter to quarter due to hospital mergers and closures and/or the opening of small hospitals. However, the changes in the number of EDs do not affect the coverage of the NSW population provided by these services. These 131 EDs account for approximately 95% of all ED presentations in NSW.

In the January to March 2017 quarter, the activity and performance measures reported in *Healthcare Quarterly* were based on 175 EDs. These additional 44 small EDs, classified into peer groups D and F, are not reported on individually. They serve regional populations in the following LHDs: Western NSW, Southern NSW, Northern NSW, Murrumbidgee and Far West. Inclusion of these 44 EDs increases the number of presentations statewide, but has litttle impact on performance trends at the NSW level.

The activity and performance measures reported in *Healthcare Quarterly* are based on all EDs reporting to the EDDC in each quarter.

Emergency department presentations by different hospital cohorts

In Figure 1 of *Healthcare Quarterly, Trend report,* three groups of EDs were used to report ED presentations from July 2015 to the most recent quarter.

1. All hospitals: this cohort includes all EDs that were reporting to the EDDC in each quarter and included in the report.

2. Consistent hospital cohort: for comparison spanning more than one year, ED presentations are shown using a consistent cohort of EDs reporting to the EDDC from the July to September 2015 quarter so that comparisons of presentations over longer intervals are not affected by the inclusion of additional EDs from the January to March 2017 quarter onwards.

3. Peer group A+B: this cohort includes all EDs in hospital peer groups A1, A2, A3 and B.

Analysis of COVID-19 testing cohort

The COVID-19 testing cohort in ED

Most COVID-19 testing takes place in dedicated clinics, which were established from late March. However, some EDs continued to provide COVID-19 tests, so a proportion of ED activity comprises patients visiting an ED only for a test.

The provision of COVID-19 tests has required EDs to expand their services. This practice will vary across hospitals and local health districts (LHDs), and contribute to changes in ED case mix and performance.

To identify the number of patients likely to be visiting an ED only for a COVID-19 test and measure the impact on ED activity and performance, an algorithm was developed to identify patients in this 'COVID-19 testing cohort'. This algorithm is a development of the method used to identify COVID-19-related ED attendances in *Healthcare Quarterly, April to June 2020*.

Table 1   Defining the COVID-19 testing cohort using five data elements in the EDDC

Data element	Use
Triage category	Triage 5: Non urgent (ED triage category = '5')
Mode of separation	Departed with treatment complete (ED mode of separation = '04')
Provisional diagnosis	Diagnosis or condition reported is one of the following COVID-19 diagnosis codes: • **SNOMED-CT-AU** codes: 840544004 or 840546002 captured as 'discharge diagnosis' (ed_diagnosis_type = 'D'), unless not available, then 'admission diagnosis' (ed_diagnosis_type = 'P') is used • **ICD-10-AM** code: U07.2 captured as 'principal diagnosis' (ed_diagnosis_type = 'P')
Additional diagnosis	When the provisional diagnosis is not available, and the diagnosis or condition reported is one of the following COVID-19 diagnosis codes: • **ICD-10-AM code:** U07.2 captured as 'additional diagnosis' (ed_diagnosis_type = '1')
Presenting problem	When the 'provisional diagnosis' and 'additional diagnosis' do not have a COVID-19 diagnosis code, and the 'presenting problem' field includes the text 'CORONA' or 'COVID'. These spelling variations are also included: 'COVI', 'COVD, 'COVIC', 'COVIDE', 'COVIF', 'COVIID', 'COVIS', 'CVOVID'

Notes: 'Provisional diagnosis' refers to the diagnosis or condition established after assessment as being the main reason for the person presenting to the ED. 'Additional diagnosis' refers to an additional diagnosis or condition which: existed at the time the person presented to the ED; arose while the person was in ED; is expected to affect the person's treatment care plan and/or length of stay in the ED. The 'additional diagnosis' field is only used for analysis when the 'principal diagnosis' is not available.

COVID-19 testing cohort definition

BHI identified ED attendances as only for a COVID-19 test where they were recorded in ED information systems with:

- diagnosis or presenting problem consistent with covid-19 testing;
- triage category 5 (non-urgent); and
- were treated and discharged.

The COVID-19 testing cohort was defined using a combination of five data elements in the EDDC. EDDC fields used for provisional diagnosis and additional diagnosis in the HIE are included in Indicator Specification on page 34.

Table 1 (page 3) outlines how each data element was used to identify the COVID-19 testing cohort.

Analytical methods

Triage category
The triage scale is used to classify how urgent a patient's need is for treatment in the ED. Patients in triage category 5 (non-urgent) have minor illnesses or symptoms and are categorised as having a less urgent condition. Patients who present to an ED for a COVID-19 test are most likely to be triaged as non-urgent.

Mode of separation
The mode of separation describes the status of the patient at departure from the ED. Patients who present to an ED and receive a COVID-19 test only are sent home to await the results. These patients should have a mode of separation of 'departed with treatment complete'.

Diagnosis codes and presenting problem
Under NSW Health guidelines for COVID-19 Data Collection and Reporting Requirements, an ED visit relating to COVID-19 is captured in the relevant ED systems using specific diagnosis codes and/or in the 'presenting problem' field.

Diagnosis codes – EDs in NSW report diagnosis information in the 'provisional diagnosis' and 'additional diagnosis' data elements of the EDDC using the following classifications:

- Systematized Nomenclature of Medicine – Clinical Terms – Australian version (SNOMED-CT-AU), Emergency Department Reference Set
- International Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM), various editions.

Hospitals in Hunter New England LHD and St Vincent's Health Network, as well as Hawkesbury District Health Service and Northern Beaches Hospital, report diagnosis information in ICD-10-AM. All other hospitals report in SNOMED-CT-AU.

Hospitals reporting using SNOMED-CT-AU capture information on symptoms and diagnosis for any ED attendance in the 'discharge diagnosis' field and 'admission diagnosis' field in the ED system (represented in HIE as ED diagnosis type 'D' and ED diagnosis type 'P' respectively). Hospitals reporting using ICD-10-AM capture diagnosis information in the 'principal diagnosis' field and 'additional diagnosis' field in the ED system (represented in HIE as ED diagnosis type 'P' and ED diagnosis type '1') (Table 1).

ED attendances relating to COVID-19 were recorded using either SNOMED-CT-AU or ICD-10-AM codes (Table 2). Three COVID-19 diagnosis codes (SNOMED-CT-AU: 840544004 or 840546002 and ICD-10-AM: U07.2) were used to select the COVID-19 testing cohort. These codes were used because patients who present to an ED for a COVID-19 test are unlikely to have their test results by the time they leave the ED.

Diagnosis codes where results were known (SNOMED-CT-AU: 840519006 and ICD-10-AM: U07.1 and U06.0) were excluded.

Presenting problem – The 'presenting problem' is a free-text field that provides information on symptoms or condition for a patient presenting to ED, as described by the person at triage. EDs are required to record the text 'COVID-19' in the 'presenting problem' field in the ED system for any ED attendance relating to COVID-19.

'Presenting problem' was the primary data element in the EDDC data that reported COVID-19-related ED attendances before the COVID-19 diagnosis codes came into effect in late March. Some variation exists in the text reported in the 'presenting problem'. The characters 'Corona' and 'COVID' were used to identify COVID-19-related ED visits. Common spelling variants are included (Table 1).

Table 2   COVID-19 diagnosis codes in SNOMED-CT-AU and ICD-10-AM

Coding system	Code	Description
SNOMED-CT-AU	840519006	COVID-19 disease caused by 2019 novel coronavirus [disorder]
	840544004	Suspected disease caused by 2019 novel coronavirus [situation]
	840546002	Exposure to 2019 novel coronavirus [event]
ICD-10-AM	U07.1	Emergency use of U07.1 [COVID-19, virus identified]
	U07.2	Emergency use of U07.2 [COVID-19, virus not identified]
	U06.0	Emergency use of U06.0 [COVID-19, ruled out]

Emergency department presentations by mode of arrival

Presentations are reported based on the mode of arrival. The mode of arrival cohorts are:

- Arrival by ambulance – presentations with mode of arrival: state ambulance vehicle, helicopter rescue service, and air ambulance service

- Arrival by police – presentations with mode of arrival: police/correctional services vehicle

- Arrival by other – presentations with mode of arrival: private vehicle; community/public transport; no transport (walked in); internal ambulance/transport; other (e.g. undertakers/contractors, retrieval [including NETS]), and internal bed/wheelchair. Presentations with missing mode of arrival are also included in this cohort.

Notes on data quality

Northern Beaches Hospital

Northern Beaches Hospital (peer group B) opened on 30 October 2018 when all services at Manly Hospital (peer group B) and acute care services at Mona Vale Hospital (peer group B) were transferred to Northern Beaches Hospital. Emergency care continues to be provided at Mona Vale Hospital through its Urgent Care Centre. BHI does not report on activity and performance at Urgent Care Centres in NSW.

BHI has been monitoring the quality of data extracted from Northern Beaches Hospital's ED information system since its opening on 30 October 2018. These data are used to calculate performance information reported in *Healthcare Quarterly* and associated information products regarding the timeliness of care in the ED.

The quality of those data at Northern Beaches Hospital in November and December 2018 were deemed by BHI to be insufficient for public reporting in *Healthcare Quarterly*[1] because of challenges experienced in the implementation of a new information system at Northern Beaches ED. Accordingly, BHI did not release ED performance information for Northern Beaches Hospital in the issue covering the period October to December 2018. This decision reflected an approach used previously by BHI when EDs across NSW transitioned from a prior ED information system to the current information system used in public hospitals.

In March 2019 an independent review of the quality of data at Northern Beaches Hospital ED assessed data quality and performance for time to treatment and time spent in the ED. This review monitored the timeliness of care of a large sample of ED patients, comparing those results to those derived from Northern Beaches Hospital's information system for the same patients.

The review found that performance information derived from the hospital's information system under-estimated time to treatment and over-estimated time spent in the ED (i.e. underestimated the hospital's performance). BHI deemed the margin of error was small enough for the community to still form sufficiently accurate views on the performance of Northern Beaches Hospital ED. Accordingly, BHI started to release ED performance information for Northern Beaches Hospital from the January to March 2019 quarter.

To acknowledge that a margin of error existed, particularly in relation to time to treatment for patients in triage category 3, BHI recommended that ED performance information for both Northern Beaches Hospital and Northern Sydney LHD be interpreted with caution. This caution applied to the January to March 2019, April to June 2019 and July to September 2019 quarters.

As of October to December 2019, BHI believes that the quality of the data derived from Northern Beaches Hospital's ED information system is now sufficiently stable to warrant removal of the advice to interpret with caution. As a result of the earlier interpret with caution recommendations by BHI, however, comparisons of ED performance results for Northern Beaches Hospital and Northern Sydney LHD from October to December 2019 onwards, with any of the January to March 2019, April to June 2019 or July to September 2019 quarters, should continue to be interpreted with caution.

Healthcare Quarterly only includes data relating to publicly contracted services at Northern Beaches Hospital.

Indicator specifications

The definitions of the ED indicators included in *Healthcare Quarterly* begin on page 19.

Ambulance

This section contains information about the data and methods used for calculating measures of ambulance activity and performance that are reported in *Healthcare Quarterly*.

Data source

NSW Ambulance Computer Aided Dispatch System

The ambulance component of *Healthcare Quarterly* is based on analyses of data extracted from the NSW Ambulance Computer Aided Dispatch (CAD) system, which is used to manage and record ambulance activity and time points across the entire patient journey. The CAD system contains information from all ambulance local response areas in NSW. Information is recorded using calls, incidents, responses, transports, Emergency Department Network Access and Ambulance Release Teams as counting units.

The CAD system is a 'live' system and data is updated continuously. The NSW reporting system for CAD data is scheduled to refresh four times daily during business hours (at 6.30am, 10.30am, 2.30pm and 6.30pm). Records are checked for a rolling three-day period for any changes and updates are undertaken accordingly to reflect the changes. On the second day of the new calendar month, all records in the previous month are closed off, that is no further updating is allowed.

Priority codes P1–P9 are included in *Healthcare Quarterly* as listed in Table 1. The following Priority Numbers are excluded for all results other than the number of calls:

- 14 (Priority Error)
- 35 (Inter-CAD Electronic Messaging System [ICEMS])
- 36 (ICEMS Urgent)
- 37 (Area coverage).

Response grid changes and non-emergency patient transport

Changes to ambulance protocols have affected some results over time, and are represented as grey bars in relevant graphs throughout the *Healthcare Quarterly* report.

Changes to the way in which incidents and responses are coded are known as grid changes. Three grid changes (March 2013, April 2015 and May 2016) saw some incidents coded as priority 2 which had formerly been coded as priority 1. Accordingly, there was an increase in the number of priority 2 incidents and a decrease in the number of priority 1 incidents around these times.

In September 2017, a change in protocol was introduced when triaging patients for inter-facility transport. Some of these responses remain as priority 3 while others require a higher priority response.

The introduction of the Patient Transport Service in May 2014 resulted in transfer of cases requiring less urgent patient transport from NSW Ambulance to HealthShare NSW.

Summary of reporting changes

As of the January to March 2019 issue of *Healthcare Quarterly* BHI replaced zone-level reporting of ambulance activity and performance with reporting by statistical geographic areas. This change was in response to the increased public interest in ambulance performance at the local level, and the introduction of the Paramedic Response Network (PRN) across metropolitan Sydney. The new operational model is made up of superstations and smaller, standby facilities called Paramedic Response Points, forming local PRNs. The new PRN structure affected the geographical boundaries of local response areas (LRAs), and in some instances, zone boundaries. Changes in the size of these areas affected the number of incidents reported at the

zone level. Additionally, continual changes to the administrative boundaries of LRAs and zones impede time trend comparisons and render the data prone to interpretation errors.

Changes were made to report measures of ambulance activity and performance for areas that are stable geographic units and are also more meaningful for the local community. The Australian Bureau of Statistics developed a geographical regional framework, the Australian Statistical Geography Standards (ASGS), to compare data between regions using areas with regional boundaries that remain stable for five years, thereby allowing comparisons of data over time.[2]

The Statistical Area Level 3 (SA3) and Statistical Area Level 4 (SA4) units have been designed for the output of regional data. They have been adopted by BHI to report ambulance activity and performance as they are small enough to be meaningful to the community yet large enough to capture sufficient incidents to provide stable estimates of performance.

There are 91 SA3 geographies in NSW. Three criteria are used to define the boundaries of SA3s:[3]

- Regional identity – neighbouring areas are grouped according to similar geographic and socioeconomic characteristics

- Population – the population of an SA3 generally ranges from 30,000 to 130,000 residents. Priority is given to the regional identity of an area for defining the boundaries and this can result in SA3s with smaller or larger populations

- Functionality – the area of an SA3 is defined in relation to transport and commercial centres.

SA4s are built by aggregating whole SA3s. The SA4 regions are the largest sub-State regions in the main structure of ASGS. There are 28 SA4 geographies in NSW reported on as of the January to March 2019 quarter. Two criteria are used to define the boundaries of SA4s:[4]

- Population – a minimum of 100,000 persons was set for the SA4. It ranges from 100,000 – 300,000 in regional areas to 300,000 – 500,000 in metropolitan areas

- Functionality – the area of an SA4 is designed to reflect the highest degree of interconnectivity between the labour supply and demand.

The shift to reporting ambulance activity and performance at SA3 and SA4 levels has led to three main changes implemented from the January to March 2019 issue of *Healthcare Quarterly*.

Statistical areas used for reporting activity and performance measures

Quarterly activity and performance measures are reported by statistical areas. Measures of activity and performance are reported by SA3 for all response priorities, with the exception of Priority 1A. For Priority 1A, the median response time is reported by SA4 as the number of P1A incidents in some SA3s is too low to permit consistent reporting of response times. Reporting by SA4 still provides local information but is based on a higher number of incidents.

Use of choropleth maps

The choropleth maps report ambulance activity and performance by SA3. There are two separate maps presented in the report – one for regional, rural and remote NSW (excluding Greater Sydney) and another for Greater Sydney. Separate maps are used because space does not allow for results within Greater Sydney to be discerned within a map of all NSW in printed materials.

Two measures are presented using choropleth maps:

1. the rate of incidents where a call resulted in the dispatch of one or more ambulances (per 1,000 estimated resident population of an SA3); and

2. the percentage of priority 1 (P1) call to ambulance arrival times under 15 minutes by SA3.

Selection of activity and performance measures

Measures on mobilisation time, turnaround time and the surge day analysis have been discontinued from the issue covering the January to March 2019 quarter.

Response and call to ambulance arrival times

As of the July to September 2020 issue of *Healthcare Quarterly*, responses where the Local Response Area is missing or invalid are not included in calculation of ambulance response times or call to ambulance arrival times. This change has been made to align with the current NSW Ambulance data definition of response time.

The effect of the change is very small. For priority 1 (P1), priority 1A (P1A) and priority 2 (P2) responses, less than 0.04% of response time records were excluded. All records continue to be included in counts of responses, incidents and transports, so these counts are not affected by the change.

Indicator specifications

The definitions of the ambulance indicators included in *Healthcare Quarterly* begin on page 24.

Table 3   Incident and response priority codes

Code	Priority	Description	Example	Response required
1	1A Emergency	Highest priority Life-threatening case	Cardiac or respiratory arrest, unconscious, ineffective breathing	Immediate response Median within 10 minutes Under 'lights and sirens'
	1B Emergency	High priority	Unconscious	Emergency response Under 'lights and sirens'
	1C Emergency	Priority	Breathing problems, chest or neck injury, serious haemorrhage	Emergency response Under 'lights and sirens'
2	Urgent	Urgent	Abdominal pain	Urgent response without 'lights and sirens' within specified timeframes
3	Time-critical	Time-critical	Medical responses requested by medical practitioners	Undelayed response within specified timeframes
4–9	Non-emergency	Non-emergency	Routine transport	Routine

Admitted patients

This section contains information about the data and methods used for calculating measures of activity and performance for admitted patient episodes of care reported in *Healthcare Quarterly*.

Data source

Admitted Patient Data Collection

Admitted patient information in *Healthcare Quarterly* is based on analyses of data in the Admitted Patient Data Collection (APDC). Data are extracted from a centralised data warehouse administered by the NSW Department of Health called the Health Information Exchange (HIE). BHI also received a data file for Northern Beaches Hospital from the NSW Ministry of Health.

Hospitals are reported individually if they are classified as principal referral, major or district peer groups (A1, A2, A3, B, C1 and C2).

Facilities are included in *Healthcare Quarterly* following assessment of data completeness and accuracy, and in ways that support fair and meaningful comparison.

Quarters affected by significant changes, for example in policies or systems, are highlighted on time-trend graphs to make readers aware when such changes may contribute to shifts in trend between quarters.

To ensure accuracy in activity and performance comparisons between quarters in *Healthcare Quarterly*, information is provided for the number of hospitals contributing to each quarter's results. This facilitates the interpretation of trends by showing the reader at what point in time new hospitals were introduced in quarterly reporting. Showing the fluctuations in the number of facilities contributing to results over time is meant to aid the reader's interpretation of changes in trends.

Forensic patients

Forensic patient admissions are included in *Healthcare Quarterly* but are not reported separately. Long Bay Hospital and the Forensic Hospital are included in totals for the 'Other' group and for NSW. There are forensic units in Cumberland Hospital, Morisset Hospital and Orange Health Service. Forensic patients are not reported separately in these hospitals. Cumberland Hospital and Morisset Hospital are from peer group F, and included in totals for the 'Other' group and for NSW. Orange Health Service is included in totals for peer group B and for NSW.

Summary of changes

Northern Beaches Hospital (peer group B) opened on 30 October 2018 when all services at Manly Hospital (peer group B) and acute care services at Mona Vale Hospital (peer group B) were transferred to Northern Beaches Hospital.

The peer group for Mona Vale Hospital was changed from B (major hospitals) to F4 (Sub-Acute) following the transfer of services to Northern Beaches Hospital. Mona Vale hospital is a high-level rehabilitation and sub-acute hospital, and also provides palliative care and community health. From the April to June 2019 issue of *Healthcare Quarterly*, Mona Vale Hospital was no longer included in peer group B. It is however now included in totals for the 'Other' group, comprising smaller facilities throughout NSW, and in totals for Northern Sydney LHD and NSW.

Indicator specifications

The definitions of the admitted patient indicators included in *Healthcare Quarterly* begin on page 28.

Seclusion and restraint

This section contains information about the data and methods used for calculating measures of activity and performance for seclusion and restraint reported in *Healthcare Quarterly*.

Data source

Seclusion and restraint data collection

Seclusion and restraint information in *Healthcare Quarterly* is based on analyses of data extracted from the centralised data warehouse administered by the NSW Ministry of Health, the Health Information Exchange (HIE), and a data file provided by the NSW Ministry of Health.

HIE provides information on the number of mental health episodes of care and the number of days a mental health bed was in use. The data on seclusion and restraint are manually collected by each LHD and specialty health network (SHN) and aggregated at the mental health service unit level. The data file includes information on the number of seclusion and restraint events, the number of mental health episodes of care with at least one seclusion or restraint event, and the total duration of seclusion and restraint events at the unit level for each public hospital with one or more specialised acute mental health units.

Comparisons between facilities

Healthcare Quarterly reports seclusion and restraint measures for facilities with specialised declared and non-declared acute mental health units.

In NSW, there are 46 public hospitals, plus the forensic hospital, with specialised acute mental health units that treat patients with varying severities of mental illness. To support fair and meaningful comparisons, hospitals are grouped into three broad categories based on the types of services provided: hospitals with a Mental Health Intensive Care Unit (MHICU); hospitals without a MHICU; and the Justice Health and Forensic Mental Health Network (JHFMHN).

MHICUs provide specialist, intensive multidisciplinary care to people with high levels of clinical complexity and risk that cannot be safely and effectively managed in a standard acute mental health unit. Six hospitals with a MHICU, where seclusion and restraint events are more likely to occur, are grouped together in *Healthcare Quarterly* to acknowledge their delivery of statewide tertiary mental health services.

JHFMHN provides assessment, care, treatment and other services to people with a mental illness who are, or have been, in contact with the criminal justice system. JHFMHN data are reported separately in *Healthcare Quarterly* and excluded from NSW totals because of substantial differences in mode of care and the patient cohort. The use of seclusion and restraint is more common in forensic services and forensic seclusion events are typically of longer duration.

For more information on peer grouping for benchmarking, see *Measurement Matters: Reporting on seclusion and restraint in NSW public hospitals*, available at **bhi.nsw.gov.au**

Changes in facilities

In the *Healthcare Quarterly, Trend report*, BHI reports seclusion and restraint events in 46 public hospitals with specialised acute mental health units in NSW, with the following exceptions:

- Hospitals in JHFMHN.

- Byron Central Hospital was included in the data from January to December 2017.

- Manly Hospital, which was closed on 30 October 2018, has not been included from the January to March 2019 quarter.

- Northern Beaches Hospital opened on 30 October 2018. Results for Northern Beaches Hospital are not included. BHI will report seclusion and restraint results for this hospital in *Healthcare Quarterly* when the quality of data is sufficiently stable for public reporting.

- In the April to June 2020 quarter, the psychiatric acute care ward in Bathurst Hospital was temporarily closed in response to the COVID-19 pandemic.

Indicator specifications

The definitions of the seclusion and restraint indicators included in *Healthcare Quarterly* begin on page 29.

Elective surgery

Elective surgery is planned surgery that can be booked in advance. As a result of a specialist clinical assessment, patients are placed on a waiting list and given a clinical priority category depending on the urgency of their condition. This section contains information about the data and methods used for calculating measures of activity and performance for elective surgery.

Data source

Waiting List Collection On-line System

The elective surgery component of *Healthcare Quarterly* is based on analyses of data extracted from the central data warehouse, the Waiting List Collection On-line System (WLCOS). WLCOS includes information on the date a patient is listed for a surgical procedure, the type of procedure required, the specialty of the surgeon, the urgency category of their surgery and whether the patient is currently ready for surgery. Some of these factors may change during the time a patient is on the waiting list.

Facilities are included in *Healthcare Quarterly* following assessment of data completeness and accuracy, and in ways that support fair and meaningful comparison.

Quarters affected by significant changes, for example in policies or systems, are highlighted on time-trend graphs to make readers aware of changes that may contribute to shifts in trends between quarters.

Summary of changes

Northern Beaches Hospital

Northern Beaches Hospital (peer group B) opened on 30 October 2018 when all services at Manly Hospital (peer group B) and acute care services at Mona Vale Hospital (peer group B) were transferred to Northern Beaches Hospital.

Healthcare Quarterly only includes data relating to publicly contracted services at Northern Beaches Hospital.

Patients still waiting for surgery at Manly or Mona Vale hospitals on 30 October 2018 had their waiting time information transferred to the Northern Beaches Hospital. This means that some patients may have waiting times that exceed the number of days Northern Beaches Hospital has been open.

Waiting list analysis

As of the April to June 2020 issue of *Healthcare Quarterly*, BHI has included additional measures of elective surgery activity and timeliness:

- the number of patients added to the elective surgery waiting list during the reported period – counts are reported by urgency category.

- the number of patients on the elective surgery waiting list who waited longer than clinically recommended time – counts of patients who were on the waiting list at the end of the reporting period who had waited more than the clinically recommended time for their urgency category. Counts are reported by urgency category, by specialty and by procedure. Counts are also reported by specialty or procedure for semi-urgent and non-urgent categories. These measures provide more detail than, and supersede the previous measure of, patients with waiting time of more than 12 months.

As of the July to September 2020 issue of *Healthcare Quarterly*, patients whose admissions were contracted to another public hospital are included in the count of patients who received surgery. This change has been applied to all quarters. These patients are included in accordance with current NSW Health performance indicators.

The effect of this change is very small. There were 263 NSW patients in the July to September 2020 quarter with an admission contracted to another public hospital (0.4% of all patients who received surgery), and 169 in the same quarter in the previous year (0.3% of all patients who received surgery).

Waiting list validity analysis

BHI performs quality assurance on the elective surgery waiting list records to assess the reliability and validity of the data. This is to ensure fair comparisons between hospitals regarding their management of elective surgery patients.

Validity analyses include, but are not limited to the:

- percentage of patients changed from Ready for Care (RFC) to Not Ready for Care (NRFC)

- percentage of patients changed from NRFC to RFC

- percentage of RFC patients changed to a higher urgency category

- percentage of RFC patients changed to a lower urgency category

- percentage of NRFC patients with listing status as staged and deferred.

Results for individual hospitals were consistent with the NSW results in the July to September 2020 quarter, demonstrating that hospitals adopted similar approaches to reporting the management of elective surgery patients following advice provided by the NSW Ministry of Health for changes to elective surgery as a result of COVID-19.

Indicator specifications

The definitions of the elective surgery indicators included in *Healthcare Quarterly* begin on page 32.

COVID-19 Supplement

This section contains information about the data and methods used for calculating activity measures in *Healthcare Quarterly – COVID-19 Supplement, January to September 2020*. The supplement covers EDs, ambulance, admitted patients and elective surgery.

Data sources

This supplement draws on five main data sources.

COVID-19 information is provided by the COVID-19 Public Health Response Branch, NSW Ministry of Health.

'COVID-19 tests performed by test date' refers to the total number of diagnostic tests done in NSW by the date the person presented for the test. This means that people who have multiple tests on different days have each test counted separately. Multiple tests on the same person on any one day are only counted as one test. All negative tests the person has had on different days are counted separately and their first positive test is also counted. All tests conducted after the first positive test are not counted.

'COVID-19 cases by symptom onset date' is based on the date the person reported that they first started to feel unwell (the symptom onset date). This is collected by public health staff via an interview at the time of diagnosis. If symptom onset date is not available, the earliest test date/specimen collection date is used. This number includes NSW residents diagnosed in NSW who were infected overseas and

in Australia (in NSW and interstate), and interstate or international visitors diagnosed in NSW who are under the care of NSW Health.

Data analyses for emergency departments, ambulance services, admitted patients and elective surgery are based on the same data sources for each section in *Healthcare Quarterly, Activity and Performance and the Trend report*:

- Emergency Department Data Collection (EDDC) – data drawn from the HIE

- NSW Ambulance Computer Aided Dispatch (CAD) system

- Admitted Patient Data Collection (APDC) – data drawn from the HIE

- Waiting List Collection Online System (WLCOS).

Analytical methods

Weekly activity

The *COVID-19 Supplement* outlines the weekly pattern of activity for NSW public EDs, ambulance services, hospital admissions and elective surgery for January to September 2020, compared with the weekly pattern of activity in January to September 2019.

Weekly activity is calculated by aggregating daily activities for a seven-day week from Sunday to Saturday. For 2020, the first complete week was Sunday 5 to Saturday 11 January 2020, and the final complete week was Sunday 20 to Saturday 26 September 2020. Data points are labelled with the last day of the week.

Due to known variation in activity by day of the week, the daily data for 2019 were adjusted so that the same day of the week in 2019 could be compared with the corresponding day of the week in 2020. For example, Sunday 6 January 2019 is compared with Sunday 5 January 2020. Weekly totals are calculated using the adjusted day unless otherwise stated. For 2019, the first week was Sunday 6 to Saturday 12 January 2019, and the final week was Sunday 22 to Saturday 28 September 2019.

The same definitions and methodology used for *Healthcare Quarterly, Activity and Performance* and the *Trend report* were used to analyse weekly numbers in the *COVID-19 Supplement* for ED attendances, emergency presentations, ambulance responses, episodes of care for admitted patients, and elective surgical procedures.

Reporting by geography

ED attendances and hospital admissions were analysed for hospitals in metropolitan, and rural, regional and remote areas. Hospitals are classified as metropolitan, or rural, regional and remote, using the geocoded address of the hospital assigned to Australian Bureau of Statistics statistical areas level 2 (SA2) and the Australian remoteness index for areas.

Defining the COVID-19 testing cohort

The definitions and methodology described on pages 3–5 were used to analyse the COVID-19 testing cohort in EDs.

Clinical cohort reporting

Emergency department

EDs report diagnosis information in the EDDC using the following classifications:

- Systematized Nomenclature of Medicine – Clinical Terms – Australian version (SNOMED-CT-AU), Emergency Department Reference Set

- International Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM), various editions.

Hospitals in Hunter New England LHD and St Vincent's Health Network, as well as Hawkesbury District Health Service and Northern Beaches Hospital, report diagnosis information in ICD-10-AM. All other hospitals report in SNOMED-CT-AU.

Diagnosis information was analysed using the 'provisional diagnosis' data elements in the EDDC. The information was captured in the 'discharge diagnosis' field for hospitals reporting using SNOMED-CT-AU and in the 'principal diagnosis' field for hospitals reporting using ICD-10-AM. BHI maps all diagnosis information to a single classification, the Emergency Department ICD-10-AM Principal Diagnosis Short List (ED Short List).[5]

Admitted patients

All hospitals report diagnosis information using ICD-10-AM for admitted patients in the APDC. All diagnosis information has been mapped in the HIE to ICD-10-AM, 11th edition. Diagnosis information was analysed using the 'principal diagnosis' field in the APDC data, which refers to diagnoses assessed to be primarily responsible for occasioning hospital admissions.

Mapping ED diagnosis codes to a single classification

BHI uses mapping files provided by the NSW Ministry of Health to assign diagnosis information in the different classifications to a single classification: ED Short List, which was endorsed by the National Data Governance Committee in December 2018.

The ED Short List was developed by the Independent Hospital Pricing Authority (IHPA) in 2015 and adheres to classification principles approved by the Emergency Care Advisory Working Group (ECAWG). The ED Short List replaces previous reporting inconsistencies in reporting principal diagnosis using various codes sets, including:

- SNOMED-CT-AU, Emergency Department Reference Set

- ICD-10-AM, various editions, and

- ICD-9-CM.

Grouping diagnosis codes into clinical cohorts

ICD-10-AM provides a systematic coding scheme to describe diseases and causes of injury. Principal diagnoses are defined in the ICD classifications from the broad chapter level to more specific categories, as illustrated below:

- ICD Chapter
- ICD Sub-Chapter
- ICD 3-character code
- ICD 4-character code (where relevant)
- ICD 5-character code (where relevant).

ICD-Chapters cover broad groupings of related diagnoses. In *Healthcare Quarterly – COVID-19 Supplement, January to September 2020*, BHI focuses on clinical cohorts consisting of the diagnoses covered by five of the 21 ICD-10-AM Chapters, to explore the impact of COVID-19 on the level of activity in EDs and on hospital admissions.

Data completeness

BHI assesses data completeness for diagnosis information to support fair and meaningful comparisons. The diagnosis information for ED

attendances is added to the EDDC at the time of, or shortly after, the ED visit. ED data are downloaded from the HIE two to three weeks after the end of the reporting quarter. The completion rate for diagnosis information is around 98% at NSW level for any given week.

The diagnosis information for completed admitted patient episodes of care is added to the APDC after the end of the episode. The diagnosis information was downloaded more than seven weeks after the end of the reporting quarter; the NSW completion rate for diagnosis information was above 95% for any week reported in the *COVID-19 Supplement*. The NSW completion rate for diagnosis information in the last week of September 2020 was 97.8%, however, there were more hospitals with a completion rate for diagnosis information below 95%, therefore BHI recommends in the report that results presented by principal diagnosis for the last week of the reporting quarter should be interpreted with caution.

Indicator specifications

The definitions of the indicators included in the *COVID-19 Supplement* begin on page 34.

Table 4   ICD-10-AM Chapters and corresponding clinical cohorts considered in *Healthcare Quarterly, COVID-19 Supplement*

ICD-10-AM Chapter name	Clinical cohort considered in *Healthcare Quarterly, COVID Supplement*
Chapter 5: Mental and behavioural disorders	F00-F99 Mental health
Chapter 6: Diseases of nervous system	G00-G99 Nervous system
Chapter 9: Diseases of circulatory system	I00-I99 Circulatory system
Chapter 10: Disease of respiratory system	J00-J99 Respiratory system
Chapter 19: Injury, poisoning and certain other consequences of external causes	S00-T98 Injury

Suppression rules

Small numbers in any group need to be treated cautiously to protect patients' identities.

BHI suppresses information if it is based on very few patients. If there are fewer than five patients in any group for admitted patient and emergency department data, patient numbers are displayed as <5.

For seclusion and restraint reporting, episode numbers are displayed as <5 if there are fewer than five seclusion or physical restraint events. Average duration of seclusion and physical restraint events is suppressed if there are fewer than five seclusion or physical restraint events. Changes in average duration of seclusion and physical restraint events are suppressed if there are fewer than five seclusion or physical restraint events either in the reporting period or in the same quarter the previous year. Due to the infrequent use of mechanical restraint, it is only reported at NSW level to protect patient privacy.

For ambulance reporting at SA3 level, performance measures for two SA3s, Blue Mountains – South and Illawarra Catchment Reserve, are suppressed because the estimated resident population in the area is less than 1,000, and the very small volume of ambulance responses results in unstable estimates.

For elective surgery measures reported by urgency category, low counts have been pooled with another urgency group. Because the staged procedure category is excluded from performance measure calculations, low counts in this group are not suppressed.

If there are fewer than 10 patients in any group, on-time performance and median waiting times are suppressed. If there are fewer than 100 patients in any group, the 90th percentile is suppressed.

Indicator specifications

Emergency department: Activity measures

All ED attendances	All ED attendances is the count of every record in the Emergency Department Data Collection (EDDC) of the HIE. This count includes presentations of all ED visit types including emergency presentations, planned return visits, pre-arranged admissions, some outpatient visits, private referrals, persons pronounced dead on arrival and patients in transit.
	This count excludes records entered in error (mode of separation = 99), telehealth and eHealth presentations (ED visit type = 12), and presentations by patients who are already admitted to the same hospital (ED visit type = 13).
Emergency presentations	Emergency presentations are records in the EDDC of the HIE of presentations with an ED visit type of: emergency (1), an unplanned return visit for a continuing condition (3) or disaster (11). Emergency presentations in *Healthcare Quarterly* are reported by triage category.
Mode of arrival	ED presentations by mode of arrival includes all presentations at the ED that have a mode of arrival recorded. Mode of arrival categories include:
	• Arrival by ambulance – presentations with mode of arrival: state ambulance vehicle (1), helicopter rescue service (4), and air ambulance service (5)
	• Arrival by police – presentations with mode of arrival: police/correctional services vehicle (7)
	• Arrival by other – presentations with mode of arrival: community/public transport (2), private vehicle (3), internal ambulance/transport (6), other, eg undertakers/contractors (8), no transport (walked in) (9), retrieval (including NETS) (10), and internal bed/wheelchair (11). Presentations with missing mode of arrival are also included in this cohort.
Mode of separation	ED presentations by mode of separation includes all presentations at the ED that have a departure time recorded. Mode of separation categories include:
	• Treated and discharged – presentations with mode of separation: admitted and discharged as patient within ED (2) or departed with treatment complete (4). The admitted and discharged as patient within ED (2) code was discontinued on 1 January 2018 due to the update to a new HIE Emergency Department Data Dictionary.
	• Treated and admitted to hospital – presentations with modes of separation: admitted to a ward/ inpatient unit (1), admitted to a critical care ward (10), or admitted via an operating theatre (11)
	• Left without, or before completing, treatment – presentations with modes of separation: departed, did not wait (6), departed – left at their own risk (7) or admitted – left at own risk (13). Patients who 'did not wait' were triaged, but left the ED before treatment commenced. Patients who 'left at their own risk' were triaged and treatment had begun by a clinician or nurse, but the patient left prior to completing their treatment
	• Transferred to another hospital – presentations with mode of separation: transferred to another hospital (5) or admitted and then transferred to another hospital (12)
	• Other – presentations with modes of separation: admitted and died in ED (3), dead on arrival (8) or departed for another clinical service location (9). Presentations with missing mode of separation are also included in this cohort.
Triage category	A classification system based on how urgent the patient's need is for treatment:
	• Triage category 1: Resuscitation (for example, cardiac arrest)
	• Triage category 2: Emergency (for example, chest pain, severe burns)
	• Triage category 3: Urgent (for example, moderate blood loss, dehydration)
	• Triage category 4: Semi-urgent (for example, sprained ankle, earache)
	• Triage category 5: Non-urgent (for example, small cuts, abrasions).

Emergency department: Performance measures

Time to starting treatment in the ED

Description of measure	The time from first presenting at the ED to the time treatment started in a designated ED treatment area.

Treatment time is the earlier of the following fields in the EDDC of the HIE:

• First seen by clinician time – the date and time when the patient is first seen by a medical officer and has a physical examination or treatment performed that is relevant to their presenting problem(s)

• First seen by nurse time – the date and time when the patient is first seen by a nurse and has an assessment or treatment performed that is relevant to their presenting problem(s).

If either 'first seen by clinician time' or 'first seen by nurse time' is more than 12 hours before presentation time or more than 31 days after presentation time, then that field is considered an error and is excluded from calculations. If both 'first seen by clinician time' and 'first seen by nurse time' are more than 12 hours before presentation time or more than 31 days after presentation time, then treatment time for that record is considered an error and excluded from calculations. If treatment time is earlier than presentation time, but 12 hours or less before presentation time, then time from presentation until treatment is set to zero.

BHI does not report time from presentation to starting treatment for patients in triage category 1, because BHI considers waiting time for these patients to not be informative. Recording of presentation, triage and treatment times for patients who should be assessed or treated within two minutes (triage 1) is unlikely to be recorded precisely enough to report against a two-minute benchmark, particularly when clinicians are focused on providing immediate and essential care. |
| **Cohort description (numerator and denominator)** | Emergency presentations to NSW EDs.

Emergency presentations are records in the EDDC of the HIE of presentations with an ED visit type of emergency (1), an unplanned return visit for a continuing condition (3) or disaster (11).

Emergency presentations are reported by triage category. |
| **Further details (inclusions, exclusions)** | Inclusions:

• Patients who had a valid triage category and treatment time

• Records with an ED visit type of Emergency (1), Unplanned return visit for a continuing condition (3) and Disaster (11).

Exclusions:

• Non-emergency presentations

• Records with a missing treatment time

• Records with missing or invalid information for triage category are excluded from reported counts of emergency presentations

• Records with a mode of separation of Did not wait for treatment (6), Dead on Arrival (8) or Departed for other Clinical Service Location (9). |
| **Data source** | Emergency Department Data Collection (EDDC) |

Measures used in this report

Median time to starting treatment	Time from presentation by which half of patients started their treatment.
	The other half of patients took equal to or longer than this time.
90th percentile time to starting treatment	Time from presentation by which 90% of patients started treatment.
	The final 10% of patients took equal to or longer than this time.
Percentage of patients whose treatment started within clinically recommended time	The number of presentations where the time from presentation to treatment was less than, or equal to, the clinically recommended time as a percentage of the total number of presentations. The percentage is reported for emergency patients with a triage category of 2 to 5. It is reported by triage category, and for these triage categories combined.

Denominator:

- All emergency presentations to NSW public hospital EDs.

Numerator:

- Denominator cases where the time between arrival at the ED and treatment time was within the clinically recommended timeframe for the relevant triage category.

- A patient started treatment within the clinically recommended timeframe if the time from presentation to the start of clinical treatment is less than, or equal to, the maximum waiting times recommended in the Australasian College for Emergency Medicine policy on the Australasian Triage Scale.

AUSTRALASIAN TRIAGE SCALE CATEGORY	TREATMENT ACUITY (maximum waiting time for medical assessment and treatment)	PERFORMANCE INDICATOR THRESHOLD
Triage 1: Resuscitation	Immediate	100%
Triage 2: Emergency	10 minutes	80%
Triage 3: Urgent	30 minutes	75%
Triage 4: Semi-urgent	60 minutes	70%
Triage 5: Non-urgent	120 minutes	70%

Time spent in the ED

Description of measure	The difference between presentation time and departure time.
	Departure time is defined as:
	• Actual departure time – the date and time at which the patient physically leaves the ED as recorded in the actual departure time field in the emergency visit database in the HIE. If the time recorded for actual departure is before the presentation time or more than 31 days after the presentation time, then the actual departure time field is treated as missing and the record is excluded from calculations that use actual departure time.
	• Ready for departure time – the date and time when the assessment and initial treatment of the person is completed such that if home arrangements of the person (including transport) were available, the person could leave the ED. It is recorded in the ready for departure time field in the emergency visit database in the HIE.
	Ready for departure time is used to calculate time spent in the ED for patients who are treated and discharged. Actual departure time is used for all other patients.
	If the time recorded for ready for departure is before presentation time or more than 31 days after presentation time, then that departure time field is considered an error and treated as missing. If the time recorded for ready for departure time is missing or is later than the time recorded for actual departure time, then actual departure time is used in calculations. If both ready for departure time and actual departure time are missing, the record is excluded from calculations that use ready for departure time.
Cohort description (numerator and denominator)	All ED presentations with a valid departure time.
	'All presentations' is the count of every record in the EDDC of the HIE. This count includes presentations of all ED visit types including emergency presentations, planned return visits, pre-arranged admissions, some outpatient visits, private referrals, persons pronounced dead on arrival and patients in transit.
	Records are assigned to the reporting period using the arrival date and time field.
Further details (exclusions)	Exclusions:
	• Records entered in error (mode of separation = 99), telehealth and eHealth presentations (ED visit type = 12), and presentations by patients who are already admitted to the same hospital (ED visit type = 13).
	• If the time recorded for ready for departure time is missing, is before presentation time or more than 31 days after presentation time, or is later than the time recorded for actual departure time, then actual departure time is used in calculations.
	• Records with missing time to departure are excluded from calculations that use time to departure.
Data source	Emergency Department Data Collection

Measures used in this report

Median time spent in the ED	The time half the patients spent in the ED, calculated as the difference between presentation time and departure time.
	The other half of patients spent equal to or longer than this time.
90th percentile time spent in the ED	The time by which 90% of patients had left the ED.
	The remaining 10% spent equal to or longer than this time.
Percentage of patients who spent four hours or less in the ED	Denominator:
	• All presentations to NSW public hospital EDs.
	Numerator:
	• Denominator cases where the time between arrival at and departure from the ED was equal to or less than four hours.

Transfer of care time

Description of measure	The difference between arrival time and the time responsibility for the patient's care was transferred from paramedics to ED staff in an ED treatment zone.
	For more information, see *Spotlight on Measurement: Measuring transfer of care from the ambulance to the emergency department* available at **bhi.nsw.gov.au**
Cohort description (numerator and denominator)	All patients arriving by ambulance at hospitals with an ED which is included in *Healthcare Quarterly* and with records in the Transfer of Care Reporting System (TCRS).
Further details (exclusions)	Inclusions:
	• Matched records; those where the ambulance incident number and date can be identified in both the NSW Ambulance data and the ED data.
	Exclusions:
	• Hospitals with fewer than 50 matched records in the quarter. Caution is advised when interpreting performance results for hospitals where transfer of care could not be calculated for more than 30% of total records because records were not matched or transfer of care time was missing.
Data source	Transfer of Care Reporting System (TCRS) portal.
	The TCRS incorporates data drawn from the NSW Ambulance information system and from the EDDC.

Measures used in this report

Median transfer of care time	The time between arrival of patients at the ED by ambulance and transfer of responsibility for their care, for half of the patients, from paramedics to ED staff in an ED treatment zone.
	The other half took equal to or longer than this time.
90th percentile transfer of care time	The time between arrival of patients at the ED by ambulance and transfer of responsibility for their care for 90% of patients from paramedics to ED staff in an ED treatment zone.
	The final 10% of patients took equal to or longer than this time.
Percentage of patients whose care was transferred within 30 minutes	The percentage of patients who arrived by ambulance for whom responsibility for their care was transferred from paramedics to ED staff in an ED treatment zone within 30 minutes. The denominator for the percentage is the number of matched records with a valid transfer of care time.

Ambulance: Activity measures

Number of calls

Description of measure	Count of all calls requesting an ambulance vehicle, received by NSW Ambulance's Computer Aided Dispatch (CAD) system.
CAD data element description	Count of records where 'Time_CallTakingComplete' is a valid date.

Number of incidents

Description of measure	Count of all events requiring one or more ambulance responses.
	An incident is a call that results in the dispatch of one or more ambulance vehicles.
	Incidents are prioritised as highest priority (priority 1A) – immediate response under lights and sirens required (incident is potentially life threatening), priority 1 (emergency response under lights and sirens required); urgent (priority 2) – undelayed response required without lights and sirens; time-critical (priority 3) – medical responses requested by health professionals, often pre-booked; undelayed response and non-emergency (priority 4–9).
Data element description	Count of the number of calls where at least one response vehicle is assigned.

Number of responses

Description of measure	Count of all dispatches of an ambulance service vehicle.
	A response is the dispatch of an ambulance vehicle. There may be multiple responses to a single incident.
	Responses are prioritised as per incidents.
	Responses include vehicles which are cancelled prior to arrival at the incident scene.
CAD data element description	When 'Time_Enroute' is a valid date.

Number of patient transports

Description of measure	Count of the number of responses where a patient was transported by the ambulance service.
CAD data element description	Responses where 'Time_ArrivedAt_Scene' is a valid date
	AND 'Time_Depart_Scene' is a valid date
	AND 'Time_ArrivedAtScene' is prior to 'Time_Depart_Scene'.

Ambulance: Performance (timeliness) measures

Call to ambulance arrival time

Description of measure	Call to ambulance arrival time is measured from the time the call is answered (phone pickup) to the time the first ambulance service response arrives at the incident scene. No more than one call to ambulance arrival time for each incident is used.
Calculation	When:
	• 'Time_PhonePickUp' is a valid date
	• AND 'Time_ArrivedAtScene' is valid date
	• AND 'Time_PhonePickUp' is prior to 'Time_ArrivedAtScene'
	• AND Local Response Area has a valid Geo_Id code
	• AND 'Time_First_Unit_Arrived' = 'Time_ArrivedAtScene'
	• THEN calculate time difference between 'Time_PhonePickUp' and 'Time_First_Unit_Arrived'

Measures used in this report

Percentage of priority 1 incidents with call to ambulance arrival time within 15 minutes	Percentage of emergency (priority 1) response times where it takes less than or equal to 15 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of emergency (priority 1) incidents responded to in under or equal to 15 minutes as a percentage of emergency (priority 1) incidents.
	Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1.
	First ambulance service vehicle to arrive at the scene after the call answered.
	All values 0 and higher are acceptable.
Percentage of priority 1 incidents with call to ambulance arrival time within 30 minutes	Percentage of emergency (priority 1) incidents where it takes less than or equal to 30 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of emergency (priority 1) incidents responded to in under or equal to 30 minutes as a percentage of emergency (priority 1) incidents.
	Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1.
	First ambulance service vehicle to arrive at the scene after the call answered.
	All values 0 and higher are acceptable.
Exclusions	N/A
Percentage of priority 2 incidents with call to ambulance arrival time within 30 minutes	Percentage of urgent (priority 2) response times where it takes less than or equal to 30 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of urgent (priority 2) incidents responded to in under or equal to 30 minutes as a percentage of urgent (priority 2) incidents.
	Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 2.
	First ambulance service vehicle to arrive at the scene after the call answered.
	All values 0 and higher are acceptable.

Exclusions	N/A
Percentage of priority 2 incidents with call to ambulance arrival time within 60 minutes	Percentage of all statewide urgent (priority 2) response times where it takes less than or equal to 60 minutes for the first ambulance service vehicle to arrive at the scene after the call is received.
Calculation	The number of urgent (priority 2) incidents responded to in under or equal to 60 minutes as a percentage of urgent (priority 2) incidents.
	Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 2.
	First ambulance service vehicle to arrive at the scene after the call answered.
	All values 0 and higher are acceptable.
Exclusions	N/A

Ambulance response time

Description of measure	Ambulance response time is measured from the time a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene. No more than one response time for each incident is used.
NSW Ambulance Business rule	When:
	• 'Time_CallEnteredQueue' is a valid date
	• AND 'Time_ArrivedAtScene' is valid date
	• AND 'Time_CallEnteredQueue' is prior to 'Time_ArrivedAtScene'
	• AND Local Response Area maps to a valid Geo_Id code
	• AND 'Time_First_Unit_Arrived' = 'Time_ArrivedAtScene'
	• AND Local Response Area has a valid Geo_Id code
	• THEN calculate time difference between 'Time_CallEnteredQueue' and 'Time_First_Unit_Arrived'.

Measures used in this report

Median (50th percentile) ambulance response time	The total time by which half of incidents were responded to by ambulance service vehicles. The other half took equal to or longer than this time.
	The median is a statistical measure of the midpoint of the response time distribution.
	BHI uses the data for the first vehicle to arrive at the scene and the empirical distribution function with averaging to compute the median in SAS©9.
Data element description	Response time is the difference in minutes between when a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene.
	Results (minutes) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1, 1A and 2.
	First ambulance service vehicle to arrive at the scene after the call is placed in queue.
Exclusions	N/A
90th percentile ambulance response time	The time by which 90% of incidents were responded to by ambulance service vehicles. The final 10% took equal to or longer than this time.
	The 90th percentile is a statistical measure of response time distribution. BHI uses the first vehicle to arrive at the scene and the empirical distribution function with averaging to compute the 90th percentile in SAS©9.
Data element description	Response time is the difference in minutes between when a call is placed in the queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene.
	Results (minutes) are rounded to one decimal point for reporting.
Exclusions	N/A
Percentage of priority 1A responses within 10 minutes	Percentage of emergency (priority 1A) incidents (requiring at least one immediate response under lights and siren) responded to in under or equal to 10 minutes.
Calculation	The percentage is calculated as the number of priority 1A responses where the time from when a call is placed in queue (for an ambulance to be dispatched) to the time the first ambulance service response arrives at the incident scene was less than, or equal to, 10 minutes as a percentage of the total number of priority 1A responses.
	Results (%) are rounded to one decimal point for reporting.
Inclusions	Responses with a priority code of 1A.
	First ambulance service vehicle to arrive at the scene after the call is placed in queue.
	All values 0 and higher are acceptable.
Exclusions	N/A
Number of days the median priority 1A response time was within 10 minutes	In NSW there is a target of 10 minutes for the median time within which priority 1A responses should have occurred.
Inclusions	Responses with a priority code of 1A.
	First ambulance service vehicle to arrive at the scene after the call is placed in queue.

Admitted patients

Episode of care	The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one Care Type. It is designed to reflect the changing diagnosis and/or treatment of the patient and ends when the care type changes or the patient separates from the hospital.
	When a person is admitted to hospital they begin what is termed an admitted patient episode or 'episode of care'. Admitted patient episodes can be acute (admissions for immediate treatment) or non-acute (admissions for rehabilitation, palliative care, or other reasons). Admissions that involve treatment for mental health can be acute or non-acute. Patients may have more than one type of care during the same hospital admission, each of which is regarded as a separate 'episode of care'. For example, a patient may begin with acute care and then change to rehabilitation or palliative care.
Total episodes	The count of all episodes of care which end within a defined period (i.e. with an episode end date in the defined period).
Acute episodes	The count of completed episodes of care with a care type value of 1 (acute care) or 5 (newborn care).
Non-acute episodes	The count of completed episodes of care with a care type value of 2 (rehabilitation care), 3 (palliative care), 4 (maintenance care), 7 geriatric evacuation and management) or 8 (psycho-geriatric).
Mental health episodes	The count of completed episodes of care with a care type value of M (mental health care).
Planned episodes	The count of completed episodes of care with an urgency of admission value of 2 (non-emergency/planned) or 5 (regular same-day planned admission).
Unplanned/other episodes	All completed episodes of care within a defined period minus planned episodes.
Babies born	The count of completed episodes of care with source of referral of 'born in hospital'; it is a subset of unplanned episodes. Unlike all other fields in the admitted patient dataset, babies born uses the 'episode' table of the Health Information Exchange.
Stay type	Episodes of care can be for 'same-day' or 'overnight' care. Same-day refers to patients who are admitted and discharged on the same day. Overnight refers to patients who spend at least one night in hospital.
	Episodes of care can be either 'planned' or 'unplanned'. Planned refers to admissions that are arranged in advance (for example, patients who are admitted for planned elective surgery) Unplanned refers to emergency admissions (for example, for unplanned surgical patients).
Same-day episodes	The count of completed episodes of care with an episode start date equal to the episode end date.
Overnight episodes	The count of completed episodes of care with an episode start date that is earlier (not equal) to the episode end date.
Bed days	Bed days are calculated for all episodes of care completed during the reference period.
	Bed days for an overnight episode is the difference, in days, between the episode start date and the episode end date, minus the number of episode leave days recorded. Same-day episodes count as one bed day.
Acute bed days	The sum of bed days for all completed acute episodes within the defined period.
Non-acute bed days	The sum of bed days for all completed non-acute episodes within the defined period.
Mental health bed days	The sum of bed days for all completed mental health episodes within the defined period.
Average length of stay	The mean of total bed days for all completed episodes of care within the defined period. That is, the total number of days in hospital for all episode of care (including same-day and overnight patients) divided by the total number of episodes of care. The average length of stay is usually measured from midnight.

Seclusion and restraint

Number of seclusion events

Description of measure	Count of all seclusion events occurring in public specialised acute mental health inpatient units, manually collected by each local health district at mental health service unit level and reported to the NSW Ministry of Health.
Inclusions	All specialised declared and non-declared acute mental health units.
	Same-day and overnight separations.
	Complete and non-complete episodes in the reporting period.

Number of restraint events

Description of measure	Count of all restraint events occurring in public specialised acute mental health inpatient units, manually collected by each local health district at mental health service unit level and reported to NSW Ministry of Health.
Inclusions	All specialised declared and non-declared acute mental health units.
	Same-day and overnight separations.
	Complete and non-complete episodes in the reporting period.
	Mechanical and physical types of restraints.

Rate of seclusion

Description of measure	Number of seclusion events per 1,000 bed days.
Calculation	Denominator:
	• Number of accrued mental health care days in public specialised acute mental health inpatient units in the reporting period.
	Numerator:
	• Number of seclusion events in public specialised acute mental health inpatient units in the reporting period.
	Results are rounded to one decimal point for reporting.
Inclusions	All specialised declared and non-declared acute mental health units.
	Same-day and overnight separations.
	Complete and non-complete episodes in the reporting period.
Exclusions	Leave days.

Rate of physical restraint

Description of measure	Number of physical restraint events per 1,000 bed days.
Calculation	Denominator: • Number of accrued mental health care days in public specialised acute mental health inpatient units in the reporting period. Numerator: • Number of physical restraint events occurring in public specialised acute mental health inpatient units in the reporting period. Results are rounded to one decimal point for reporting.
Inclusions	All specialised declared and non-declared acute mental health units. Same-day and overnight separations. Complete and non-complete episodes in the reporting period.
Exclusions	Leave days.

Frequency of seclusion

Description of measure	Percentage of mental health admitted episodes of care where at least one seclusion event occured.
Calculation	Denominator: • Number of admitted mental health episodes of care in public specialised acute mental health inpatient units in the reporting period. Numerator: • Number of admitted mental health episodes of care with at least one seclusion event in public specialised acute mental health inpatient units in the reporting period. Results (%) are rounded to one decimal point for reporting.
Inclusions	All specialised declared and non-declared acute mental health units. Same-day and overnight separations. Complete and non-complete episodes in the reporting period.

Frequency of physical restraint

Description of measure	Percentage of mental health admitted episodes of care where at least one physical restraint event occured.
Calculation	Denominator: • Number of admitted mental health episodes of care in public specialised acute mental health inpatient units in the reporting period. Numerator: • Number of admitted mental health episodes of care with at least one physical restraint event in public specialised acute mental health inpatient units in the reporting period. Results (%) are rounded to one decimal point for reporting.
Inclusions	All specialised declared and non-declared acute mental health units. Same-day and overnight separations. Complete and non-complete episodes in the reporting period.

Average duration of seclusion

Description of measure	The average duration in hours and minutes of seclusion events.
Calculation	Total duration of seclusion events divided by the number of seclusion events in public specialised acute mental health inpatient units.
Inclusions	All specialised declared and non-declared acute mental health units. Same-day and overnight separations. Complete and non-complete episodes in the reporting period.

Average duration of restraint

Description of measure	The average duration in minutes of restraint events.
Calculation	Total duration of restraint events divided by the number of restraint events in in public specialised acute mental health inpatient units.
Inclusions	All specialised declared and non-declared acute mental health units. Same-day and overnight separations. Complete and non-complete episodes in the reporting period. Mechanical and physical types of restraints.

Elective surgery: Activity measures

The number of patients who received elective surgery	The count of patients who were removed from the waiting list during the reporting period because they were a routine admission for surgery, an admission for their listed procedure as an emergency admission, an admission contracted to another hospital, or an admission for surgery contracted to a private hospital or private day procedure centre.
The number of patients who were added to the elective surgery waiting list	The number of patients who were added to the waiting list during the reporting period. The count is the number of patients whose listing date was within the reporting period. The cohort is any patient who was on the waiting list during the reporting period. That is: • count of patients who were added to the waiting list during the reporting period • count of patients who may have received surgery during the reporting period or still be on the waiting list at the end of reporting period.
The number of patients ready for elective surgery, on the waiting list at the end of the reporting period, who had not received elective surgery within clinically recommended timeframe for their urgency category	The number of patients who were on the waiting list and ready for care at the end of the reporting period, and whose waiting time had exceeded clinically recommended timeframes, which are defined as: • Urgent surgery: patients had accrued more than 30 days ready for care • Semi-urgent surgery: patients had accrued more than 90 days ready for care • Non-urgent surgery: patients had accrued more than 365 days ready for care. This measure appears in *Healthcare Quarterly* at NSW level from April to June 2020.
The number of patients waiting for elective surgery	The count of all patients who were on the waiting list at the end of the reporting period.
Not ready for care	'Not ready for care' patients are those who are not in a position to be admitted to hospital. Patients not ready for surgery on the waiting list includes those waiting for staged procedures, non-urgent cystoscopy, and patients currently not available for personal reasons.
Urgency category	A classification system based on how urgent the patient's need for surgery is: Urgent surgery: Admission within 30 days is desirable for a condition that has potential to deteriorate quickly and become an emergency. Semi-urgent surgery: Admission within 90 days is desirable for a condition unlikely to deteriorate quickly. Non-urgent surgery: Admission within 365 days acceptable for a condition unlikely to deteriorate quickly.
Staged surgery	Surgery that, for medical reasons, cannot take place before a certain amount of time has elapsed. BHI uses this term to define all patients that could be identified as being a staged patient for most of their time on the waiting list and all non-urgent cystoscopy patients.
Common procedure	Commonly-performed elective surgical procedures.
Specialty	The area of clinical expertise held by the doctor who performed the surgery. Medical (specialty) refers to any surgery performed by a non-specialist medical practitioner.

Elective surgery: Performance measures

Elective surgery waiting time

Description of measure	The waiting period for a particular patient is defined as the time between the list date and the removal date. The time a patient waited for the initial appointment with a specialist is not included in the time a patient spent on the waiting list for elective surgery. Waiting time is calculated using the Commonwealth waiting time definition. The number of days is calculated by subtracting the listing date for care from the removal date, minus any days when the patient was 'not ready for care', and also minus any days the patient was waiting with a less urgent clinical urgency category than their clinical urgency category at removal from the waiting list.
Cohort description (numerator and denominator)	All patients removed from the waiting list during the reporting period because they were a routine admission for surgery, an admission for their listed procedure as an emergency admission, or an admission for surgery contracted to a private hospital or private day procedure centre.
Further details (inclusions, exclusions)	Exclusions: • Patients who were coded as not ready for surgery (NRFC) at the time of surgery • Patients who were recorded as NRFC on the day they were entered on to the waitlist and who had a single urgency change to their final urgency category • Patients who received a cystoscopy and were in the non-urgent category • The count for a hospital does not include admissions contracted to another public hospital.
Data source	Waiting List Collection On-line System (WLCOS).

Measures used in this report

Median waiting time in days	The number of days it took for half of patients who received elective surgery during the reporting period to be admitted and receive their surgery. The other half took equal to or longer than this time. Median waiting time is calculated using the Commonwealth waiting time definition. BHI reports the median by urgency category, surgical specialty and common procedure.
90th percentile waiting time in days	The number of days it took for 90 percent of patients who received elective surgery during the reporting period to be admitted and receive their surgery. The 90th percentile waiting time is also reported using the Commonwealth waiting time definition. BHI reports the 90th percentile by urgency category.

Percentage of patients admitted and who received surgery within the recommended timeframe

Description of measure	The proportion of patients admitted within the clinically recommended timeframe for each of the elective surgery urgency categories.
Cohort description (numerator and denominator)	Denominator: • Number of patients admitted to hospital for their elective surgery within the clinically recommended timeframe, i.e. in 30 days or less for category A patients, 90 days or less for category B patients and 365 days or less for category C patients. Numerator: • Total number of patients admitted for elective surgery in each urgency category.

COVID-19 Supplement: Activity measures

COVID-19 testing cohort	The COVID-19 testing cohort refers to patients identified as visiting an ED for a COVID-19 test only. The cohort is defined using a combination of five data elements: with COVID-19 included in the presenting problem or diagnosis fields; and as triage 5 (non-urgent) attendances; and as treated and discharged (Table 1. Page 3). The five data elements in the EDDC are: triage category, mode of separation, provisional diagnosis, additional diagnosis, presenting problem.
Provisional diagnosis	The diagnosis or condition established after assessment to be the main reason for the person presenting to the ED. ICD-10-AM sites: ed_diagnosis_type='P' At ICD-10-AM sites, this field is described as the principal diagnosis. SNOMED-CT-AU sites ed_diagnosis_type='D' At SNOMED-CT-AU sites, this field is described as the discharge diagnosis.
Additional diagnosis	An additional diagnosis or condition includes: existed at the time the person presented to the ED, arose while the person was in ED, is expected to affect the person's treatment care plan and/or length of stay in the ED. ICD-10-AM sites: ed_diagnosis_type='1' At ICD-10-AM sites, this field is described as the additional diagnosis. SNOMED-CT-AU sites ed_diagnosis_type='P' At SNOMED-CT-AU sites, this field is described as the admission diagnosis.
Provisional diagnosis and clinical cohorts for emergency presentations	Provisional diagnosis refers to the diagnosis or condition established after assessment as being the main reason for the person presenting to the ED. Provisional diagnoses are mapped to the ED Short List and classified in the ICD classifications. Of the 21 Chapters in ICD-10-AM, diagnoses from five Chapters are focused on in *Healthcare Quarterly*, including: • Chapter 5: Mental and behavioural disorders • Chapter 6: Diseases of nervous system • Chapter 9: Diseases of circulatory system • Chapter 10: Disease of respiratory system • Chapter 19: Injury, poisoning and certain other consequences of external causes.
Principal diagnosis and clinical cohorts for hospital admissions	Principal diagnosis refers to diagnoses or conditions established after assessment as being primarily responsible for the patient's hospital admission. Principal diagnoses are classified in the ICD classifications. Of the 21 Chapters in ICD-10-AM, diagnoses from five Chapters are focused on in *Healthcare Quarterly*, including: • Chapter 5: Mental and behavioural disorders • Chapter 6: Diseases of nervous system • Chapter 9: Diseases of circulatory system • Chapter 10: Disease of respiratory system • Chapter 19: Injury, poisoning and certain other consequences of external causes.
Episode of Care type	Care type was analysed using the 'episode of care type' field in the EDDC data. Episodes of care type refers to the principal clinical intent or treatment goal of the care provided to the patient for the episode of care. The care types reported in *Healthcare Quarterly* include: • Acute care – the principal clinical intent is to: manage labour (obstetric); cure illness or provide definitive treatment of injury; perform surgery; relieve symptoms of illness or injury (excluding palliative care); reduce severity of an illness or injury; perform diagnostic or therapeutic procedures; and/or protect against exacerbation and/or complication of an illness and/or injury which could threaten life or normal function • Rehabilitation care – the principal clinical intent is to: improve the functional status of a patient with an impairment, disability or handicap. • Mental health care – the primary clinical purpose or treatment goal is to: improve the symptoms and/or psychosocial, environmental and physical functioning related to a patient's mental disorder.

List of statistical areas level 4 (SA4s) by statistical areas level 3 (SA3s)

SA4	SA3s
Capital Region	Goulburn – Mulwaree, Queanbeyan, Snowy Mountains, South Coast and Young – Yass
Central Coast	Gosford and Wyong
Central West	Bathurst, Lachlan Valley, Lithgow – Mudgee and Orange
Coffs Harbour – Grafton	Clarence Valley and Coffs Harbour
Far West and Orana	Bourke – Cobar – Coonamble, Broken Hill and Far West and Dubbo
Hunter Valley excl. Newcastle	Lower Hunter, Maitland, Port Stephens and Upper Hunter
Illawarra	Dapto – Port Kembla, Illawarra Catchment Reserve, Kiama – Shellharbour and Wollongong
Mid North Coast	Great Lakes, Kempsey – Nambucca, Port Macquarie and Taree – Gloucester
Murray	Albury, Lower Murray and Upper Murray excl. Albury
New England and North West	Armidale, Inverell – Tenterfield, Moree – Narrabri and Tamworth – Gunnedah
Newcastle and Lake Macquarie	Lake Macquarie – East, Lake Macquarie – West and Newcastle
Richmond – Tweed	Richmond Valley – Coastal, Richmond Valley – Hinterland and Tweed Valley
Riverina	Griffith – Murrumbidgee (West), Tumut – Tumbarumba and Wagga Wagga
Southern Highlands and Shoalhaven	Shoalhaven and Southern Highlands
Sydney – Baulkham Hills and Hawkesbury	Baulkham Hills, Dural – Wisemans Ferry, Hawkesbury and Rouse Hill – McGraths Hill
Sydney – Blacktown	Blacktown, Blacktown – North and Mount Druitt
Sydney – City and Inner South	Botany, Marrickville – Sydenham – Petersham and Sydney Inner City
Sydney – Eastern Suburbs	Eastern Suburbs – North and Eastern Suburbs – South
Sydney – Inner South West	Bankstown, Canterbury, Hurstville and Kogarah – Rockdale
Sydney – Inner West	Canada Bay, Leichhardt and Strathfield – Burwood – Ashfield
Sydney – North Sydney and Hornsby	Chatswood – Lane Cove, Hornsby, Ku-ring-gai and North Sydney – Mosman
Sydney – Northern Beaches	Manly, Pittwater and Warringah
Sydney – Outer South West	Camden, Campbelltown (NSW) and Wollondilly
Sydney – Outer West and Blue Mountains	Blue Mountains, Blue Mountains – South, Penrith, Richmond – Windsor and St Marys
Sydney – Parramatta	Auburn, Carlingford, Merrylands – Guildford and Parramatta
Sydney – Ryde	Pennant Hills – Epping and Ryde – Hunters Hill
Sydney – South West	Bringelly – Green Valley, Fairfield and Liverpool
Sydney – Sutherland	Cronulla – Miranda – Caringbah and Sutherland – Menai – Heathcote

List of hospitals by local health district and hospital peer group, A1–C2 only

Hospital	Local health district	Hospital peer group
Armidale Hospital	Hunter New England	C1
Auburn Hospital	Western Sydney	B
Ballina District Hospital	Northern NSW	C2
Bankstown–Lidcombe Hospital	South Western Sydney	A1
Batemans Bay District Hospital	Southern NSW	C2
Bathurst Health Service	Western NSW	C1
Belmont Hospital	Hunter New England	C1
Blacktown Hospital	Western Sydney	B
Blue Mountains District Anzac Memorial Hospital	Nepean Blue Mountains	C2
Bowral and District Hospital	South Western Sydney	C1
Broken Hill Health Service	Far West	C1
Byron Central Hospital	Northern NSW	C2
Calvary Mater Newcastle	Hunter New England	A3
Campbelltown Hospital	South Western Sydney	B
Canterbury Hospital	Sydney	B
Casino & District Memorial Hospital	Northern NSW	C2
Cessnock Hospital	Hunter New England	C2
Coffs Harbour Health Campus	Mid North Coast	B
Concord Repatriation General Hospital	Sydney	A1
Cooma Hospital and Health Service	Southern NSW	C2
Cowra Health Service	Western NSW	C2
Deniliquin Hospital and Health Services	Murrumbidgee	C2
Dubbo Base Hospital	Western NSW	B
Fairfield Hospital	South Western Sydney	B
Gosford Hospital	Central Coast	A1
Goulburn Base Hospital and Health Service	Southern NSW	C1
Grafton Base Hospital	Northern NSW	C1
Griffith Base Hospital	Murrumbidgee	C1
Gunnedah Hospital	Hunter New England	C2
Hawkesbury District Health Services	Nepean Blue Mountains	C1
Hornsby Ku-ring-gai Hospital	Northern Sydney	B
Inverell Hospital	Hunter New England	C2
John Hunter Hospital	Hunter New England	A1
Kempsey District Hospital	Mid North Coast	C2
Kurri Kurri Hospital	Hunter New England	C2
Lachlan Health Service – Forbes	Western NSW	C2
Lismore Base Hospital	Northern NSW	B
Lithgow Hospital	Nepean Blue Mountains	C2
Liverpool Hospital	South Western Sydney	A1
Macksville District Hospital	Mid North Coast	C2
Maclean District Hospital	Northern NSW	C2
Maitland Hospital	Hunter New England	B

Hospital	Local health district	Hospital peer group
Manning Hospital	Hunter New England	B
Milton Ulladulla Hospital	Illawarra Shoalhaven	C2
Moree Hospital	Hunter New England	C2
Moruya District Hospital	Southern NSW	C2
Mount Druitt Hospital	Western Sydney	C1
Mudgee Health Service	Western NSW	C2
Murwillumbah District Hospital	Northern NSW	C1
Muswellbrook Hospital	Hunter New England	C2
Narrabri Hospital	Hunter New England	C2
Nepean Hospital	Nepean Blue Mountains	A1
Northern Beaches Hospital*	Northern Sydney	B
Orange Health Service	Western NSW	B
Port Macquarie Base Hospital	Mid North Coast	B
Prince of Wales Hospital	South Eastern Sydney	A1
Queanbeyan Hospital and Health Service	Southern NSW	C2
Royal North Shore Hospital	Northern Sydney	A1
Royal Prince Alfred Hospital	Sydney	A1
Ryde Hospital	Northern Sydney	C1
Shellharbour Hospital	Illawarra Shoalhaven	C1
Shoalhaven District Memorial Hospital	Illawarra Shoalhaven	B
Singleton Hospital	Hunter New England	C2
South East Regional Hospital	Southern NSW	C1
St George Hospital	South Eastern Sydney	A1
St Vincent's Hospital Sydney	St Vincent's Health Network	A1
Sutherland Hospital	South Eastern Sydney	B
Sydney Children's Hospital, Randwick	Sydney Children's Network	A2
Sydney Hospital and Sydney Eye Hospital	South Eastern Sydney	A3
Tamworth Hospital	Hunter New England	B
The Children's Hospital at Westmead	Sydney Children's Network	A2
The Tweed Hospital	Northern NSW	B
Wagga Wagga Rural Referral Hospital	Murrumbidgee	B
Westmead Hospital	Western Sydney	A1
Wollongong Hospital	Illawarra Shoalhaven	A1
Wyong Hospital	Central Coast	B
Young Health Service	Murrumbidgee	C2

*Northern Beaches Hospital opened on 30 October 2018, when services at Manly and Mona Vale hospitals were transferred to Northern Beaches Hospital. Healthcare Quarterly only includes data relating to publicly contracted services at Northern Beaches Hospital.

References

1. Bureau of Health Information. *Healthcare Quarterly: Activity and performance. Emergency department, ambulance, admitted patients and elective surgery: October to December 2018.* Sydney, March 2019.

2. Australian Bureau of Statistics. 2018. Australian Statistical Geography Standard (ASGS). Retrieved from: **https://www.abs.gov.au/websitedbs/d3310114.nsf/home/australian+statistical+geography+standard+(asgs)**

3. Australian Bureau of Statistics. 2016. Statistical Area Level 3 (SA3). Retrieved from: **https://www.abs.gov.au/ausstats/abs@.nsf/0/E7369D1FCE596315CA257801000C64E5?opendocument**

4. Australian Bureau of Statistics. 2016. Statistical Area Level 4 (SA4). Retrieved from: **https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1270.0.55.001~July%202016~Main%20Features~Statistical%20Area%20Level%204%20(SA4)~10016**

5. Emergency Department ICD-10-AM Principal Diagnosis Short List. Available from **https://www.ihpa.gov.au/what-we-do/classifications/emergency-care/emergency-department-icd-10-am-principal-diagnosis-short-list**

About the Bureau of Health Information

The Bureau of Health Information (BHI) is a board-governed organisation that provides independent information about the performance of the NSW healthcare system.

BHI was established in 2009 and supports the accountability of the healthcare system by providing regular and detailed information to the community, government and healthcare professionals. This in turn supports quality improvement by highlighting how well the healthcare system is functioning and where there are opportunities to improve.

BHI manages the NSW Patient Survey Program, gathering information from patients about their experiences and outcomes of care in public hospitals and other healthcare facilities.

BHI publishes a range of reports and information products, including interactive tools, that provide objective, accurate and meaningful information about how the health system is performing.

BHI's work relies on the efforts of a wide range of healthcare, data and policy experts. All of our assessment efforts leverage the work of hospital coders, analysts, technicians and healthcare providers who gather, codify and supply data. Our public reporting of performance information is enabled and enhanced by the infrastructure, expertise and stewardship provided by colleagues from NSW Health and its pillar organisations.

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